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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/729,193	12/05/2000	Katsuhisa Yuda	11P348157	6697

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EXAMINER

ALEJANDRO MULERO, LUZ L

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 06/06/2002

4

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/729,193

Applicant(s)

YUDA, KATSUHISA

Examiner

Luz L. Alejandro

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4 and 5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4 and 5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of group I in Paper No. 3 is acknowledged.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Plasma CVD apparatus comprising a plasma confining electrode.

### ***Claim Objections***

Claim 4 objected to because of the following informalities: "it" should be replaced with --the gas introducing member-- for proper grammar. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over NEC Corp, JP 11-168094 in view of Dhindsa et al., U.S. Patent 6,245,192 B1.

With respect to claim 1, NEC Corp., shows in fig. 5, the invention substantially as claimed including a plasma CVD apparatus comprising a substrate processing zone 10 with a deposition substrate 4 disposed therein, a plasma generating zone 6 for generating plasma of first gas; and a plasma confining electrode 29, having a hollow structure, for separating the substrate processing zone and the plasma generating zone, and confining the first gas passed through the inlet 5, and having holes for passing first gas containing neutral radicals from the first gas plasma, wherein: the plasma confining electrode has holes for introducing a second gas into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas. With respect to the plasma confining electrode being vertically spaced apart from the deposition substrate by a distance not greater than 1500 times the mean free path of the blend gas of neutral radicals and the second gas, note that in figure 27 the reference discloses that the spacing between the deposition substrate and the plasma confining electrode is less than 120 millimeters. Furthermore, the reference discloses that the distance can be just 0-60 mm (see paragraphs 0094-0098 of the English translation).

With respect to claim 4 NEC Corp. shows, in figs. 1-4, the invention substantially as claimed including a plasma CVD apparatus comprising a substrate processing zone 10 with a deposition substrate 4 disposed therein, a plasma generating zone 6 for

generating plasma of first gas, and a plasma confining electrode 11 for separating the substrate processing zone and the plasma generating zone and confining the first gas passed through the inlet 5 and having holes for passing first gas containing neutral radicals from the first gas plasma, wherein: the plasma CVD apparatus further comprises a gas introducing member 24 (see Figure 4) disposed between the plasma confining electrode member 11 and the deposition substrate 4, having a hollow structure, and having a plurality of holes through which second gas is introduced into the substrate processing zone to form a desired film on the deposition substrate by gas phase chemical reaction between the first gas containing neutral radicals and the second gas; the gas introducing member is vertically spaced apart from the substrate processing zone (see abstract and the figures). With respect to the gas introducing member being vertically spaced apart from the deposition substrate by a distance not greater than 1500 times the mean free path of the blend gas of neutral radicals and the second gas, note that in figure 27 the reference discloses that the spacing between the deposition substrate and the gas introducing member is less than 120 millimeters. Furthermore, the reference discloses that the distance can be just 0-60 mm (see paragraphs 0094-0098 of the English translation).

NEC Corp. does not expressly disclose either that the plasma confining electrode accommodates gas dispersion plates in the hollow structure (claim 1) or that the gas introducing member accommodates gas dispersion plates in the hollow structure (claim 4). But, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatuses disclosed by NEC Corp., as to further

comprise baffle plates inside the hollow structures of the confining electrode (apparatus of fig. 5) and inside the hollow structure of the gas introducing member (apparatus of fig. 1), because gas dispersion plates are well known and used in the art, for uniform distribution of gases in order to increase the consistency and yield of the process, as evidence by Dhindsa et al., U.S. Patent 6,245,192 (see col. 3-line 64 to col. 4-line 9, and the figures).

With respect to claims 2 and 5, note that the baffle assembly 26 disclosed by Dhindsa et al. comprises a plurality of parallel dispersing panels or plates 30A-30C.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Koshimizu, U.S. Patent 6,162,323, and Nisshin Electrical Co., JP 7-37870, show the state of the art in plasma apparatuses comprising plasma confining electrodes.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 305-4545. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills, can be reached on 308-1633. The fax phone numbers for the organization where this application or proceeding is assigned are 872-9310 for regular communications and 872-9311 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0661.



Luz L. Alejandro  
Patent Examiner  
Art Unit 1763

June 1, 2002